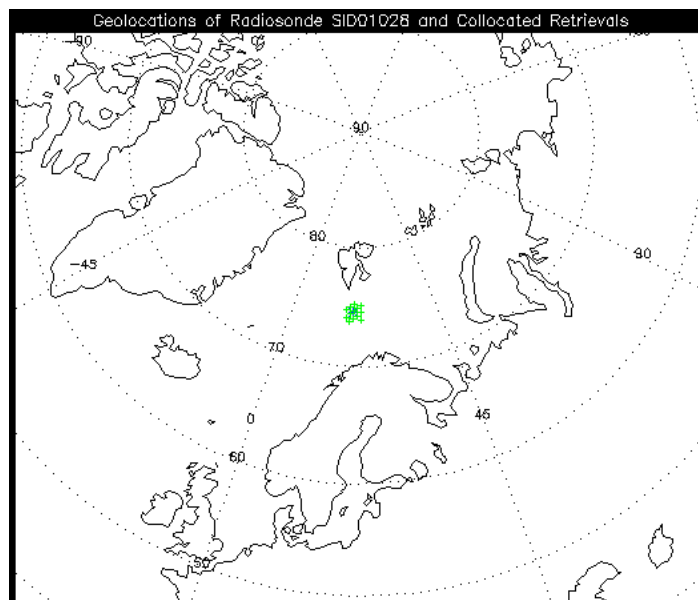


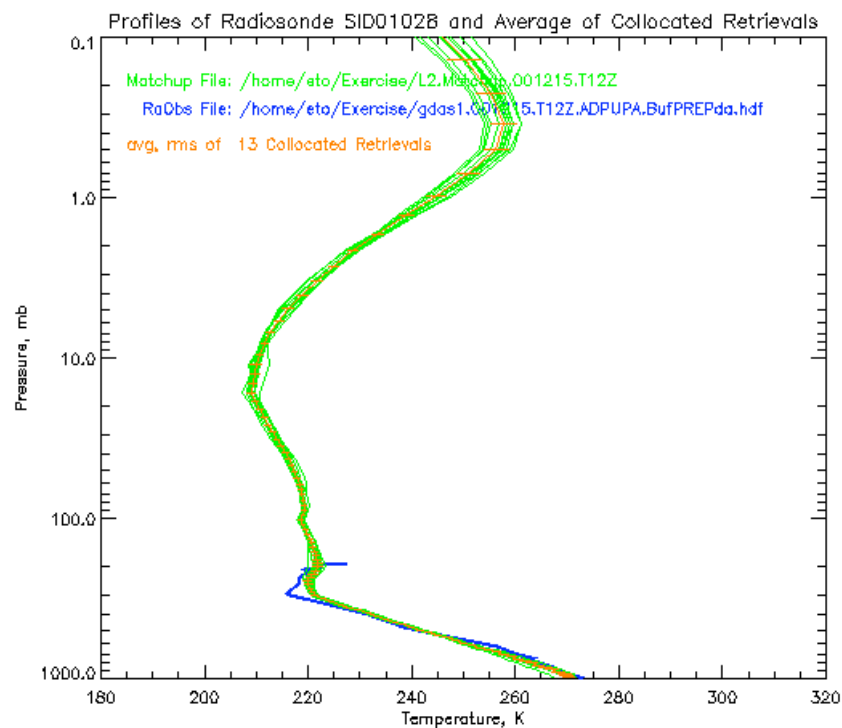
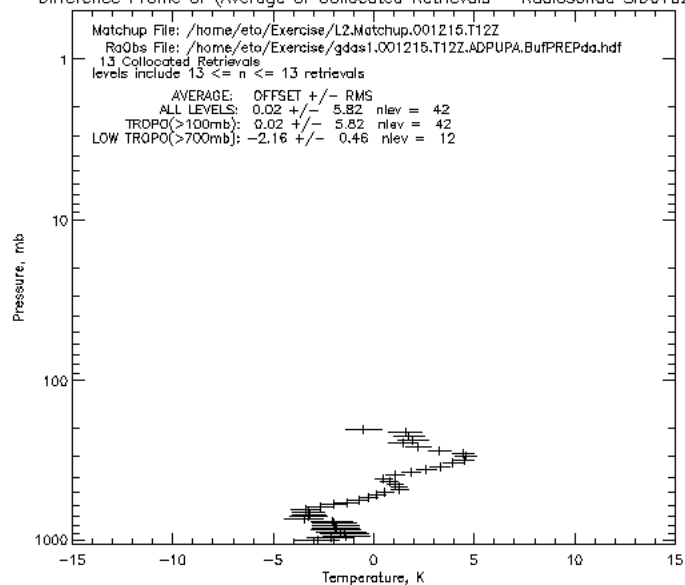


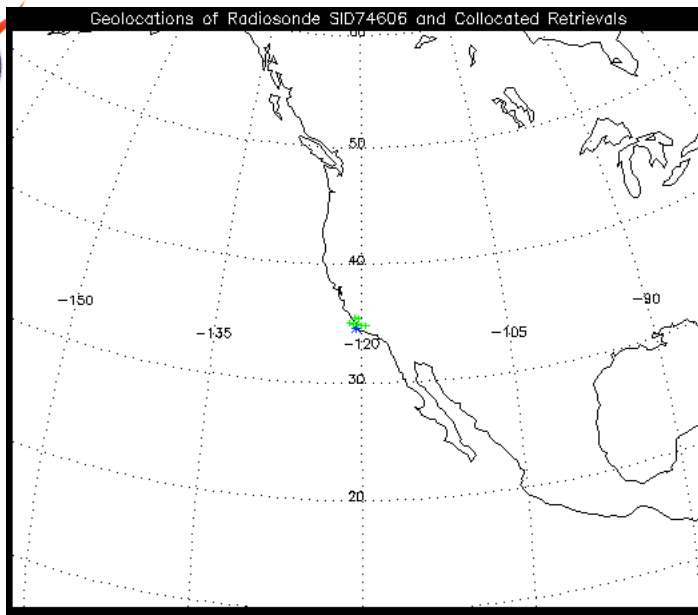
# **COLLOCATED RADIOSONDE STATISTICS for 12/15/00 T12Z MAY 29, 2001 EXERCISE**

**AIRS Science Team Meeting  
Pasadena, CA  
June 19-21, 2001**

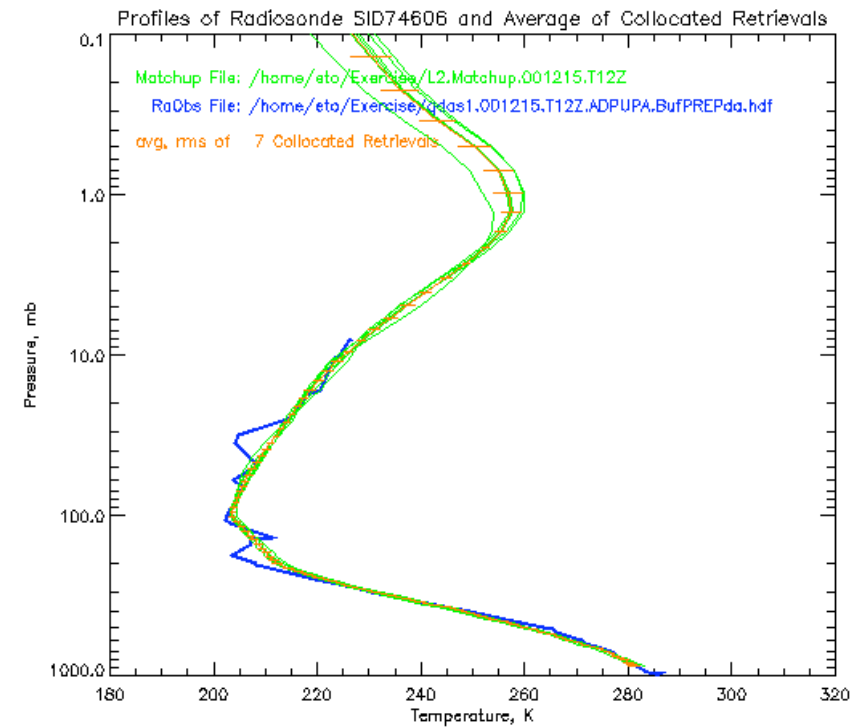
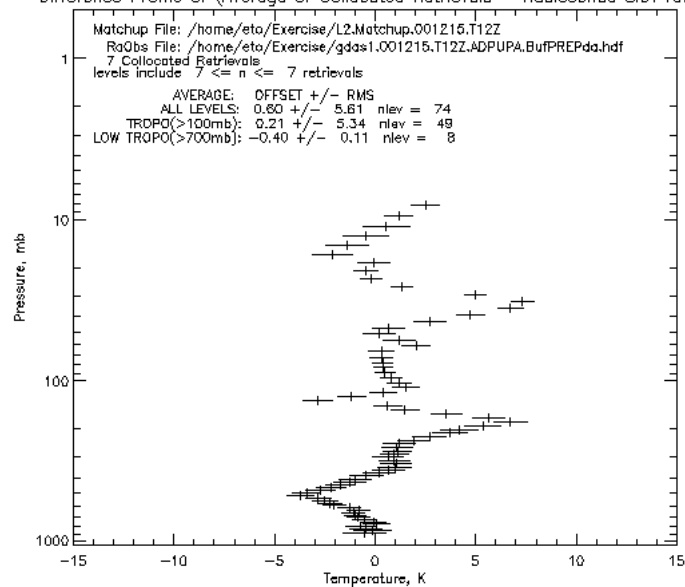


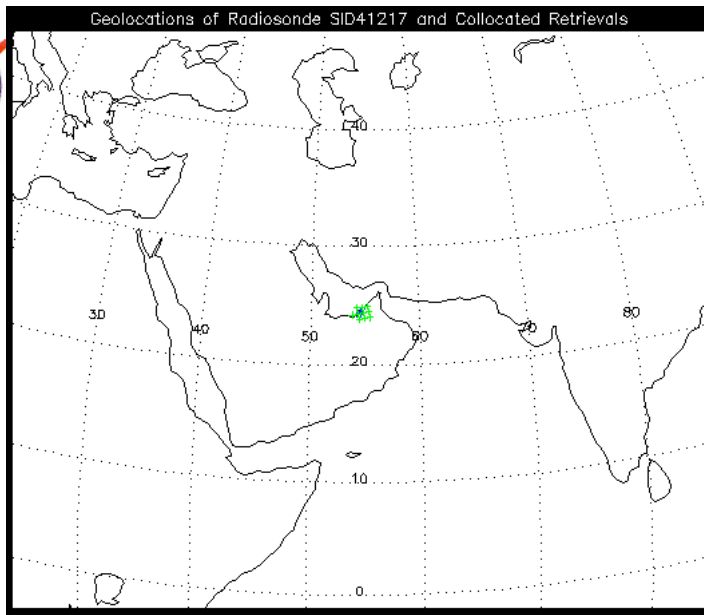
Difference Profile of (Average of Collocated Retrievals - Radiosonde SID01028)



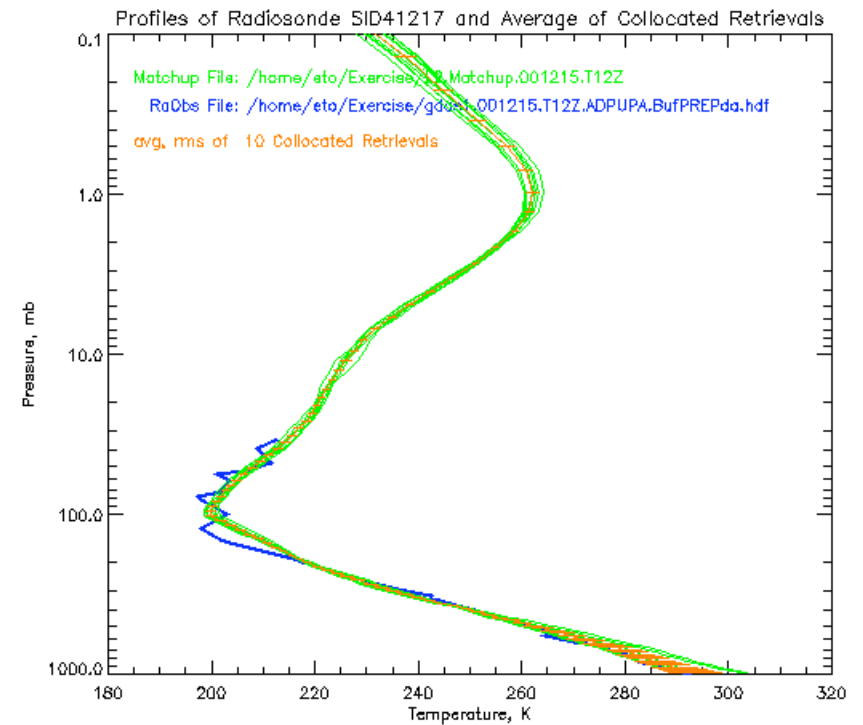
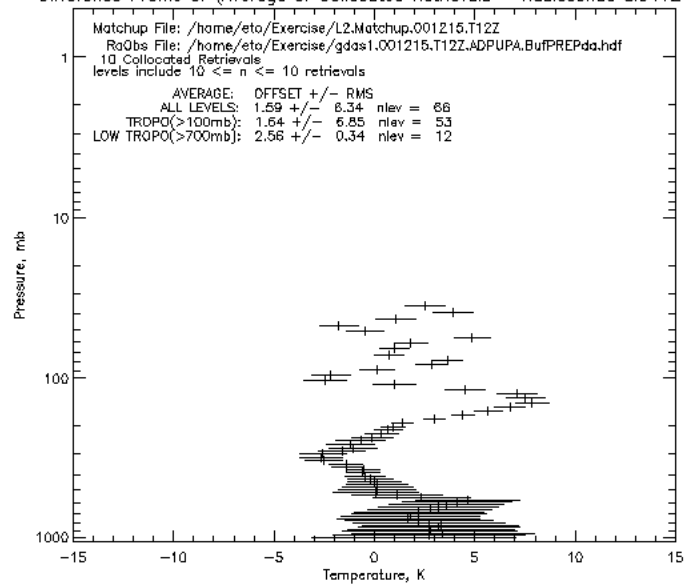


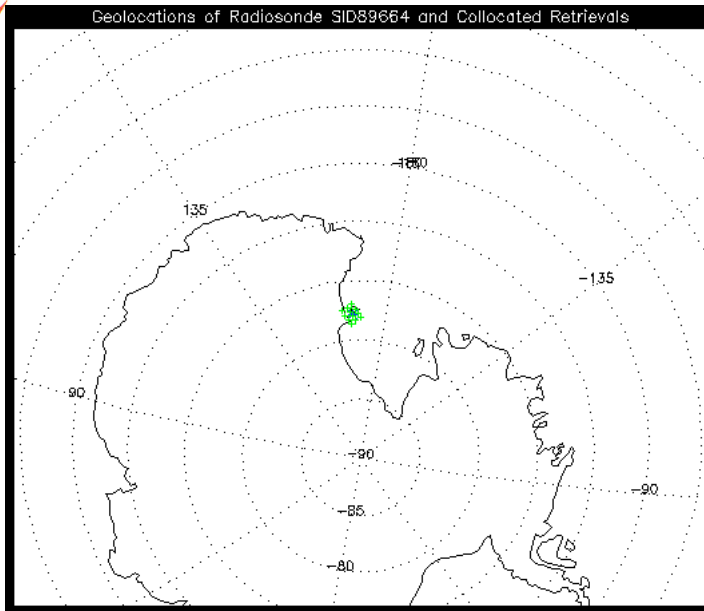
Difference Profile of (Average of Collocated Retrievals - Radiosonde SID74606)



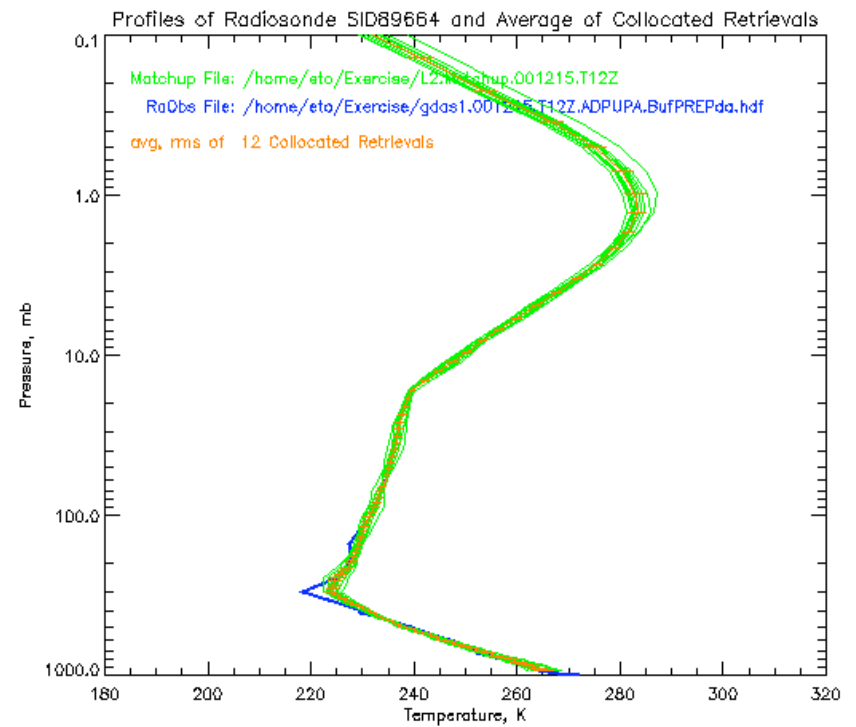
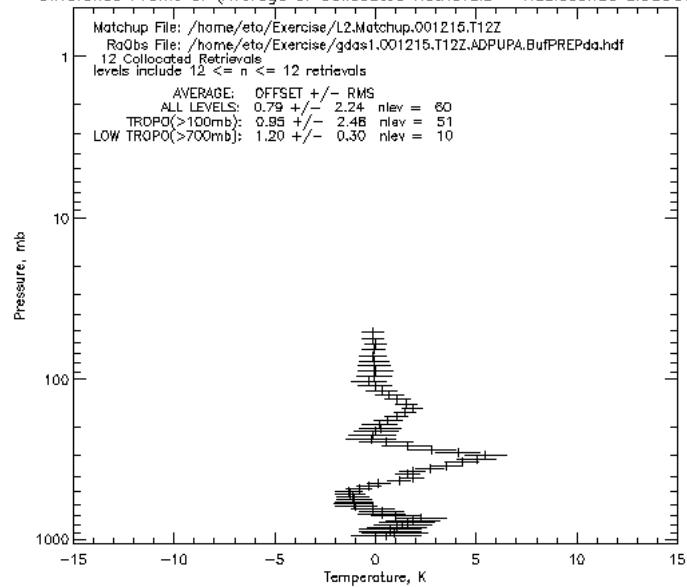


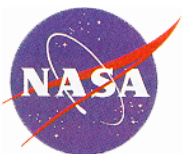
Difference Profile of (Average of Collocated Retrievals - Radiosonde SID41217)



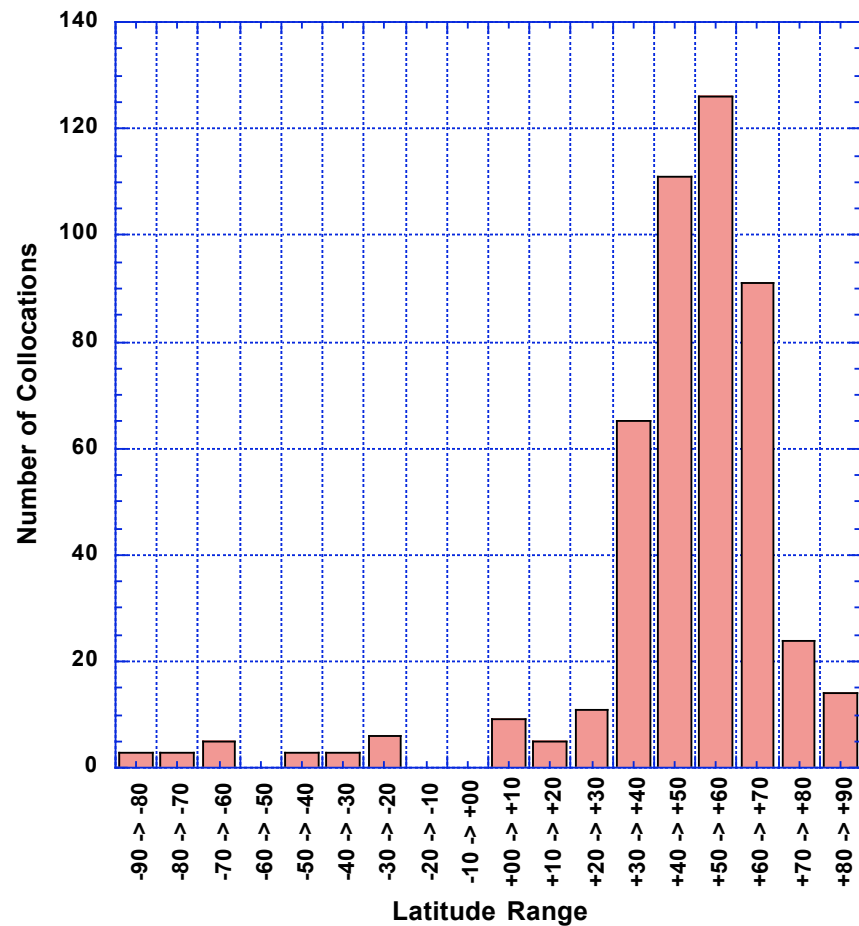


Difference Profile of (Average of Collocated Retrievals - Radiosonde SID89664)

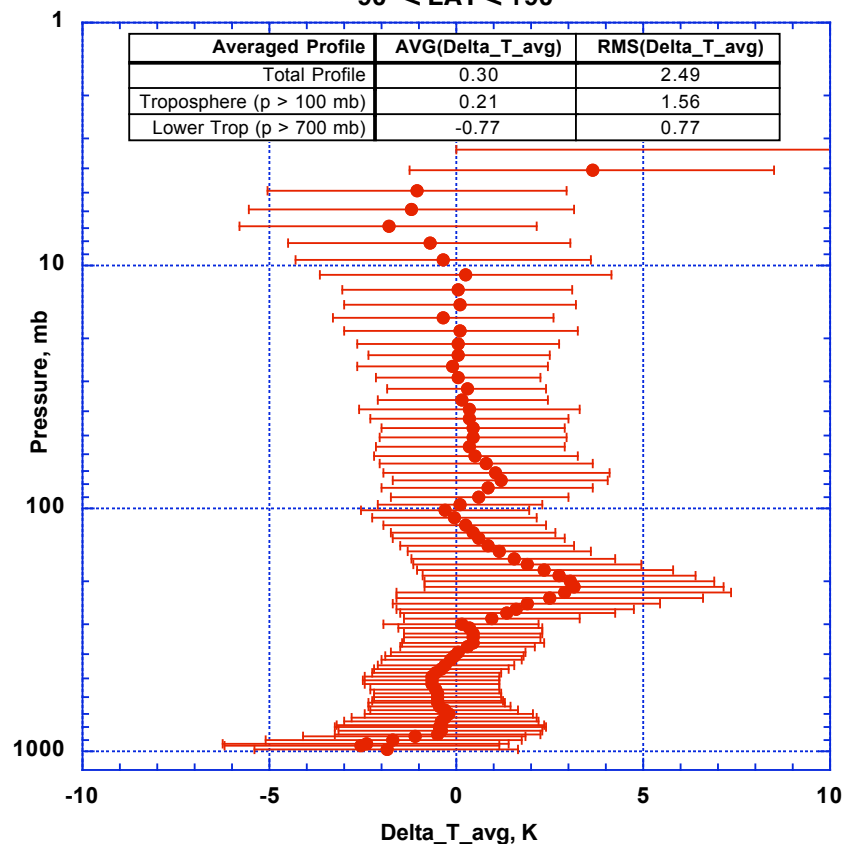


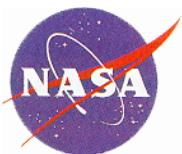


# Sample Size of Collocations for Radiosondes Launched 12Z on Dec 15, 2000

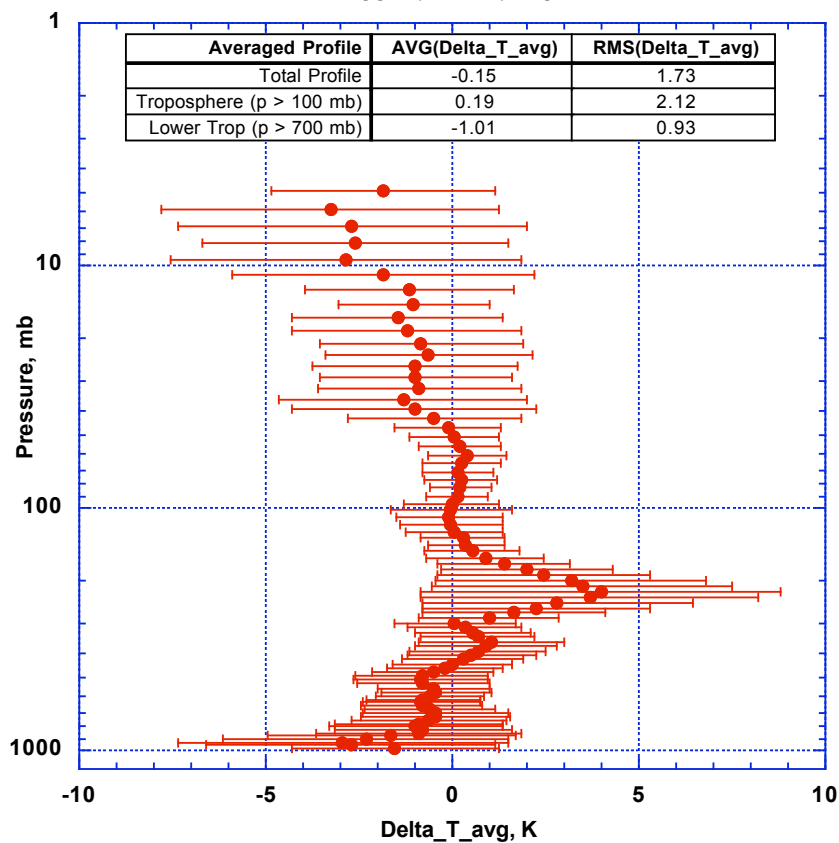


# Difference Averaged Over 480 Collocations of Average Retrieved Temperature of Collocated Retrievals and the Associated Radiosonde Temperature Observation Dec 15, 2000 T12Z -90° < LAT < +90°

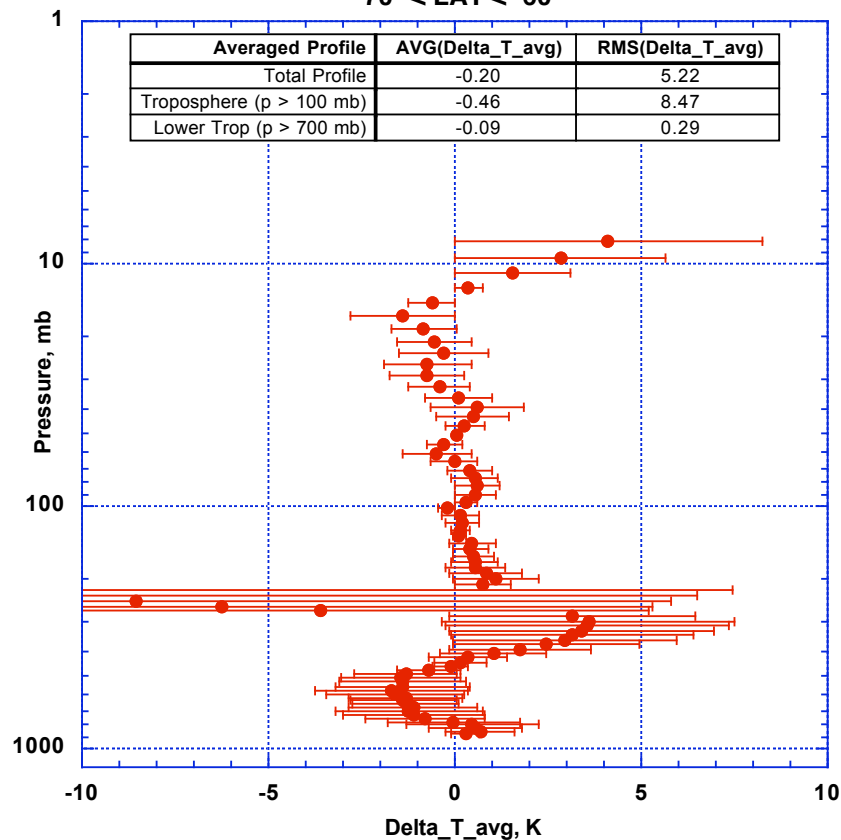


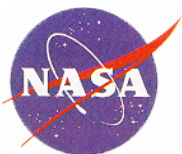


**Difference Averaged Over 91 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
+60° < LAT < +70°**

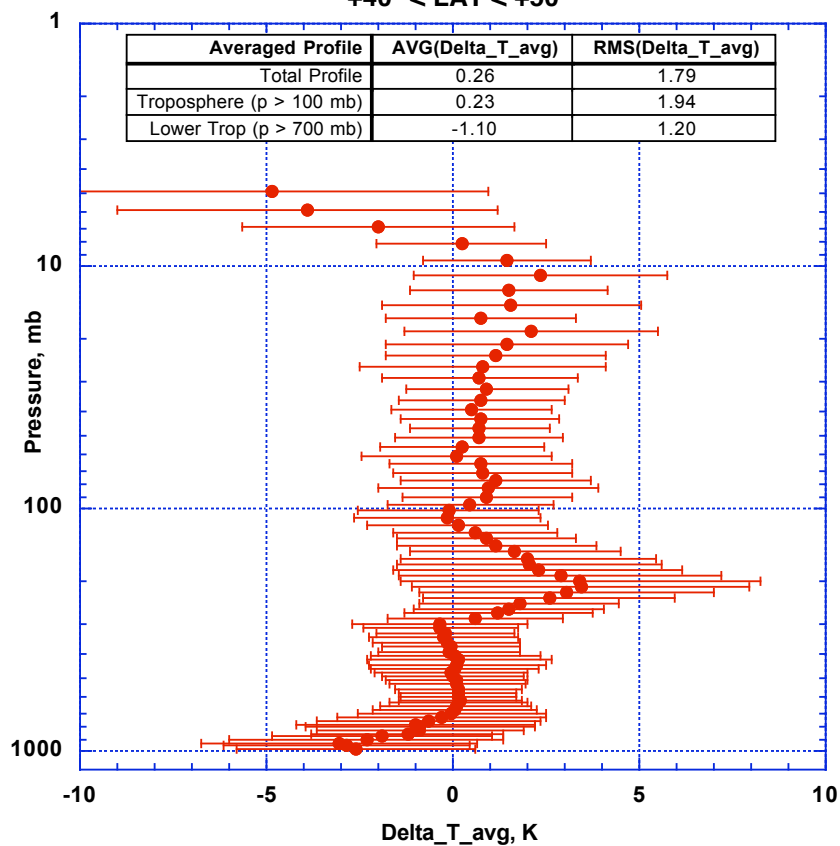


**Difference Averaged Over 5 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
-70° < LAT < -60°**

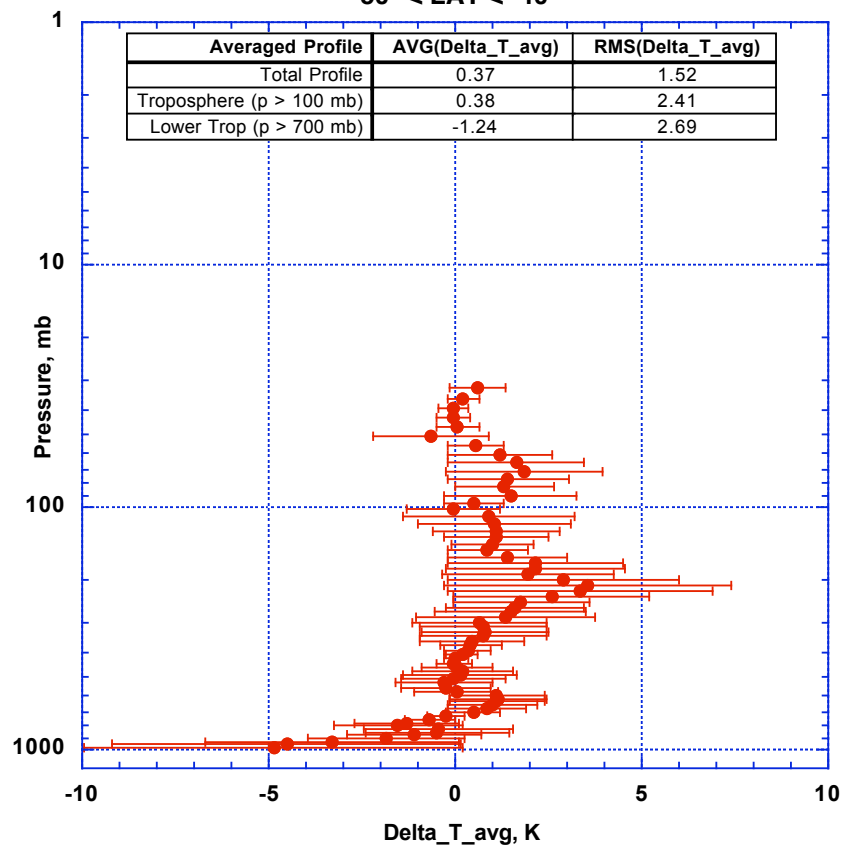




**Difference Averaged Over 111 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
+40° < LAT < +50°**



**Difference Averaged Over 3 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
-50° < LAT < -40°**







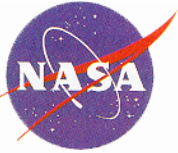
## Summary

- **Current analysis is L2 retrieval oriented**
  - Assumes that retrieval algorithms are “ready”
  - Does not utilize clear flags
  - Averages all valid collocated retrievals for comparison to associated radiosonde
- **Lessons Learned**
  - Radiosonde profile structure often highly variable above tropopause, with sharp cold feature at 200 mb that retrievals do not match
  - Dubious radiosondes are leaking into quality controlled PREPQC
    - Truncated profiles
    - Profiles containing discontinuities
    - 728 Invalid profiles (all temperatures nonphysical) out of 2,265 collocations
    - Obviously, poor radiosonde coverage in Southern hemisphere, over oceans and throughout Asia
    - Limited collocated radiosonde population at T06Z and T18Z



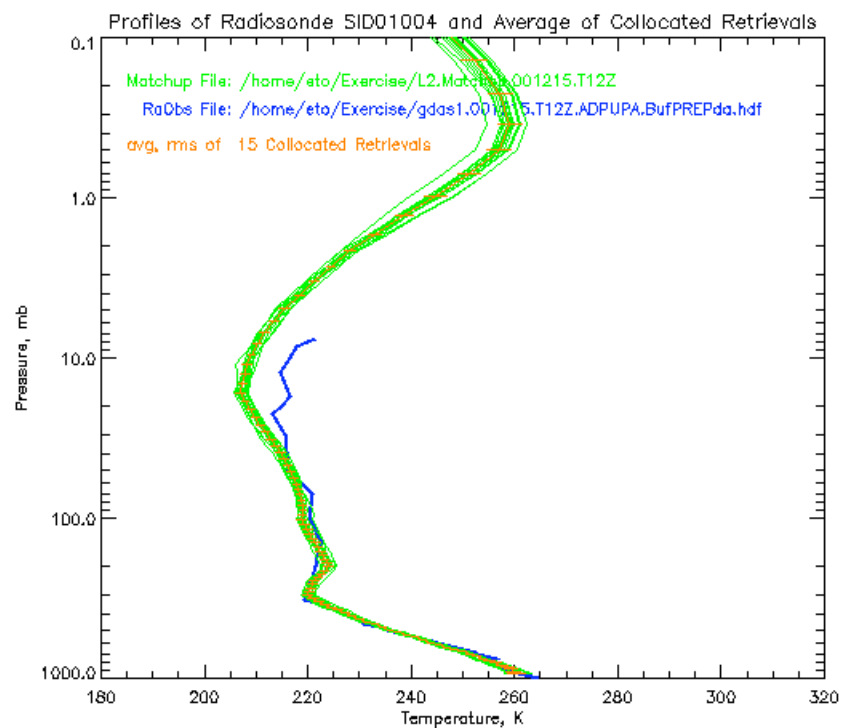
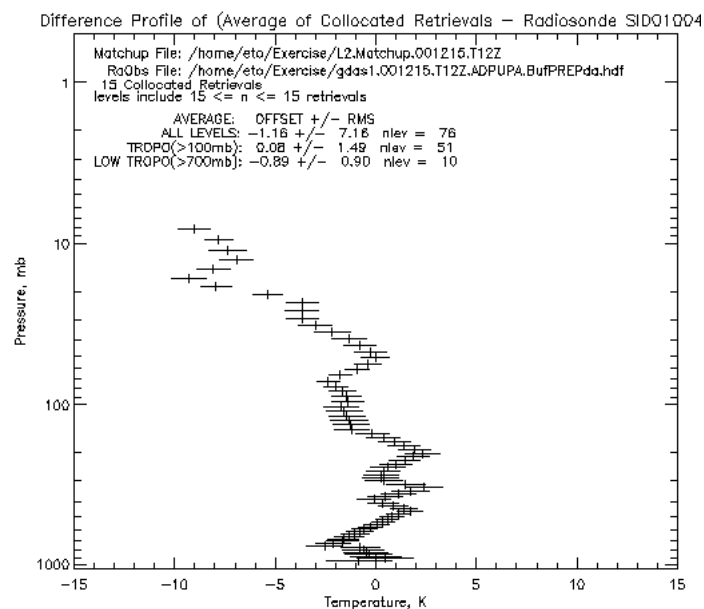
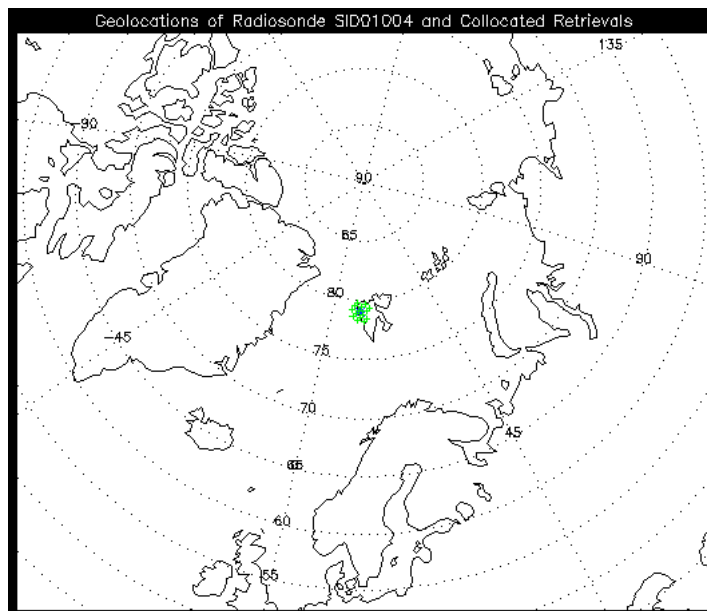
## Plans for Future Work

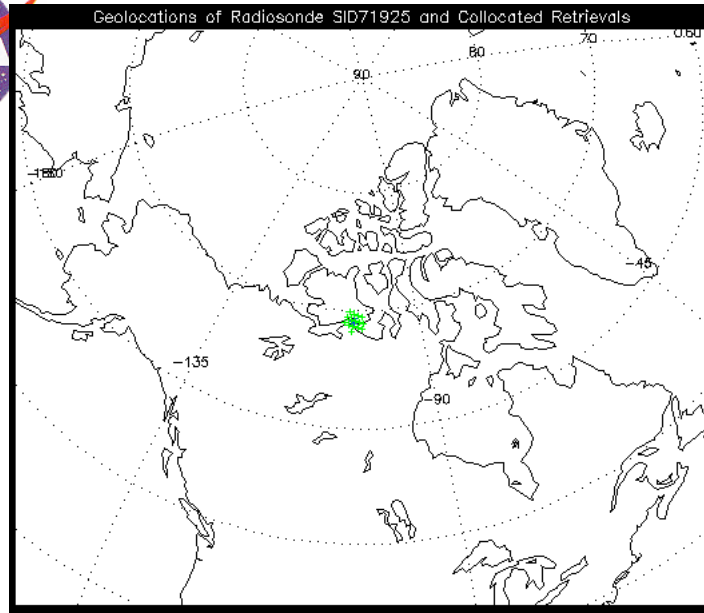
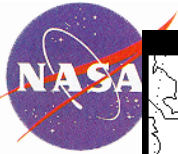
- **Implement filters to select reliable radiosonde launch sites**
- **Improve filters to select best radiosonde profiles**
- **Implement clear flag filtering of collocations to remove cloudy observations**
- **Implement “best collocated retrieval” filter**
- **Implement trend analyses**
- **Tie analyses to tuning algorithm evaluation**



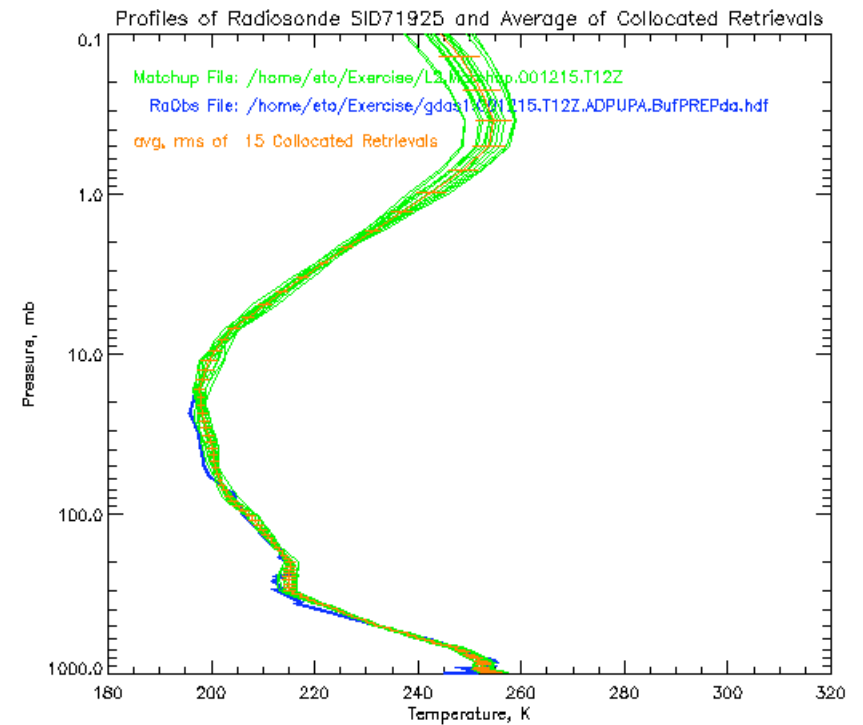
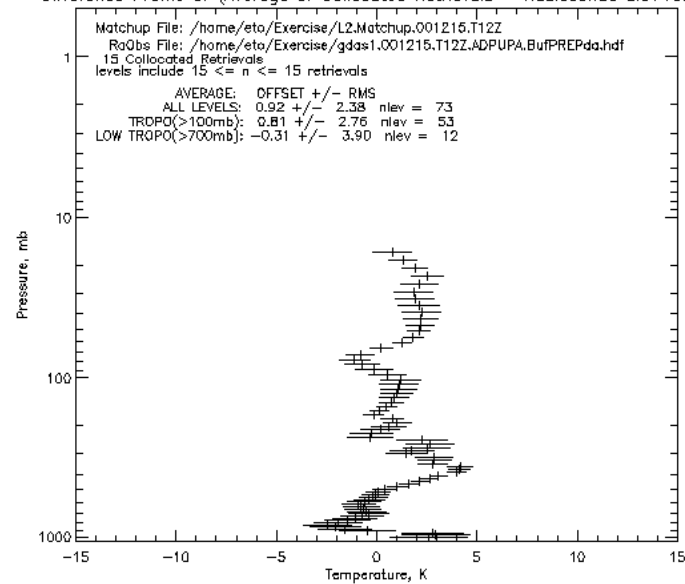
## BACKUP VGs

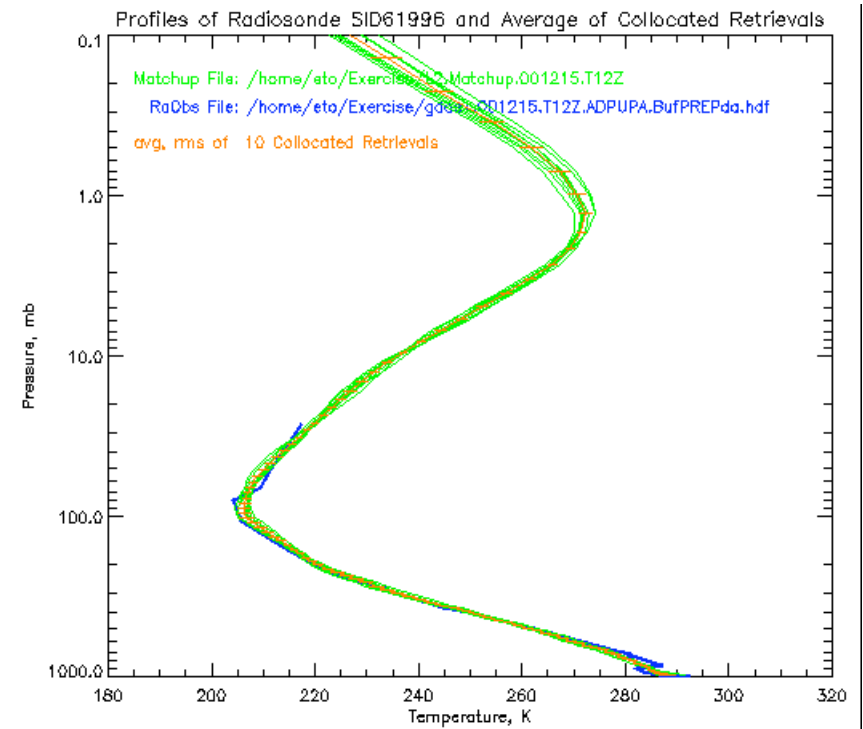
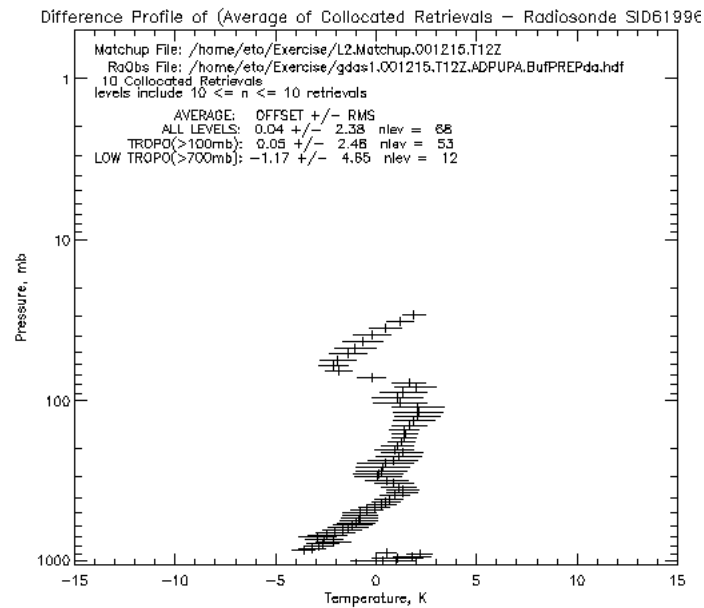
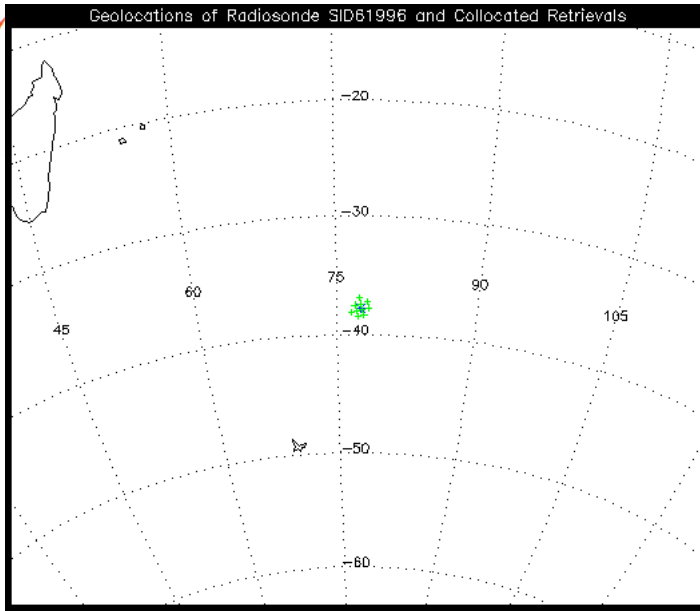
- **Additional Collocated Radiosondes and AIRS Retrievals**
- **Additional Collocation Statistics as a function of Latitude**

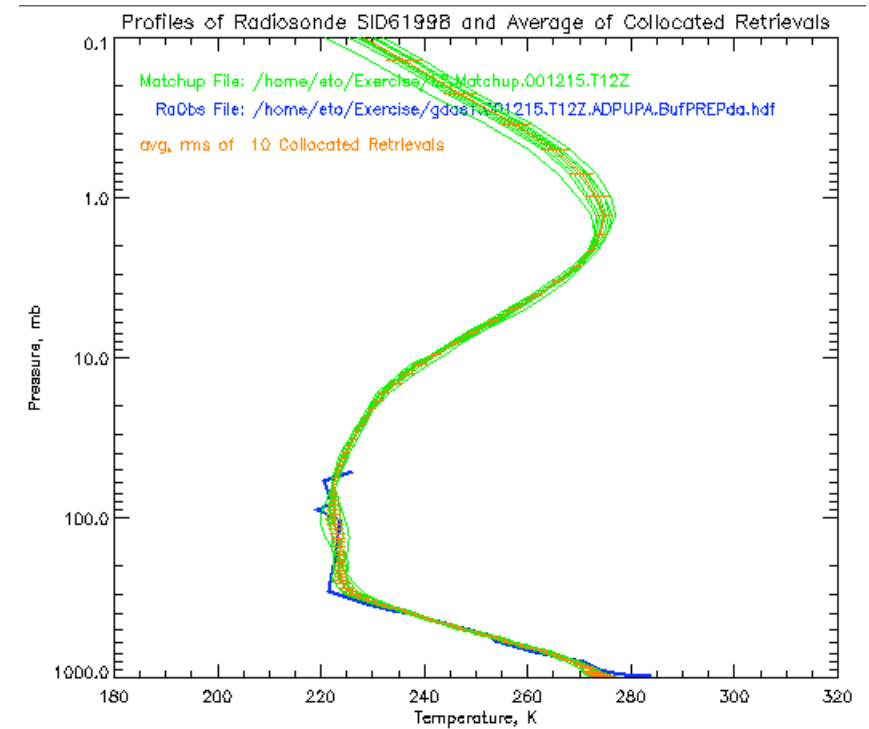
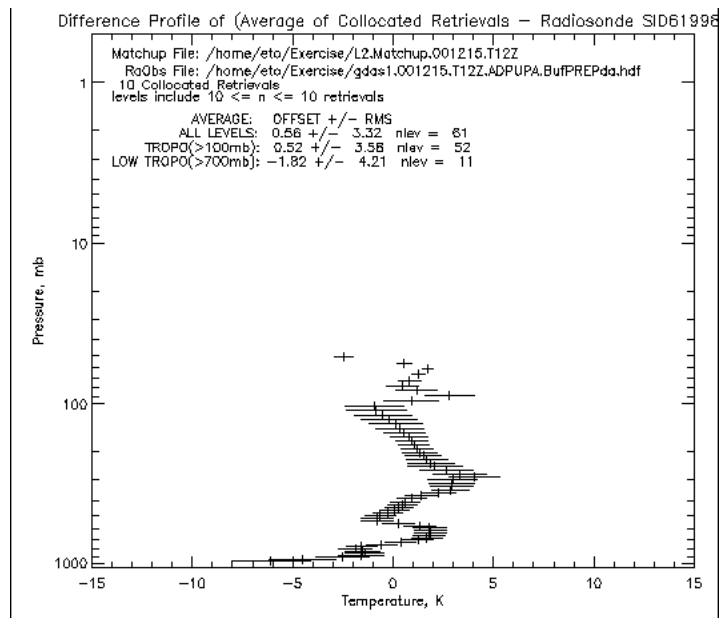
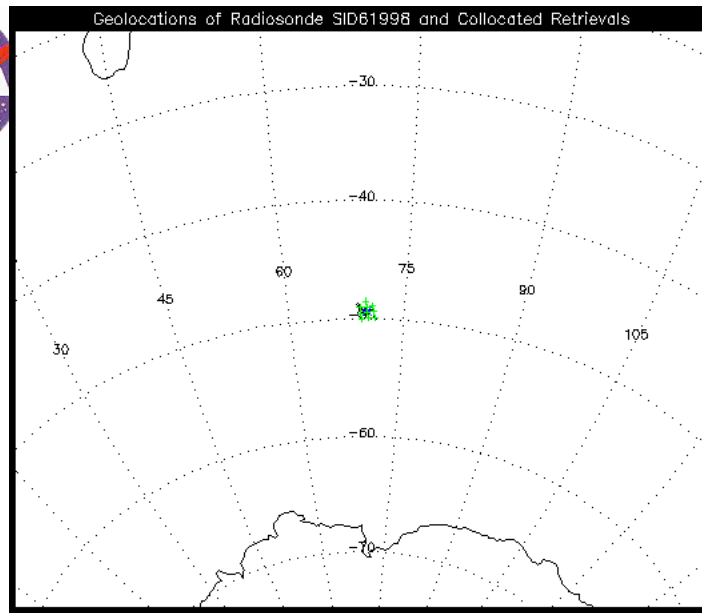




Difference Profile of (Average of Collocated Retrievals - Radiosonde SID71925)

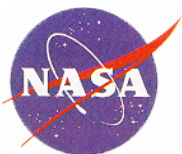




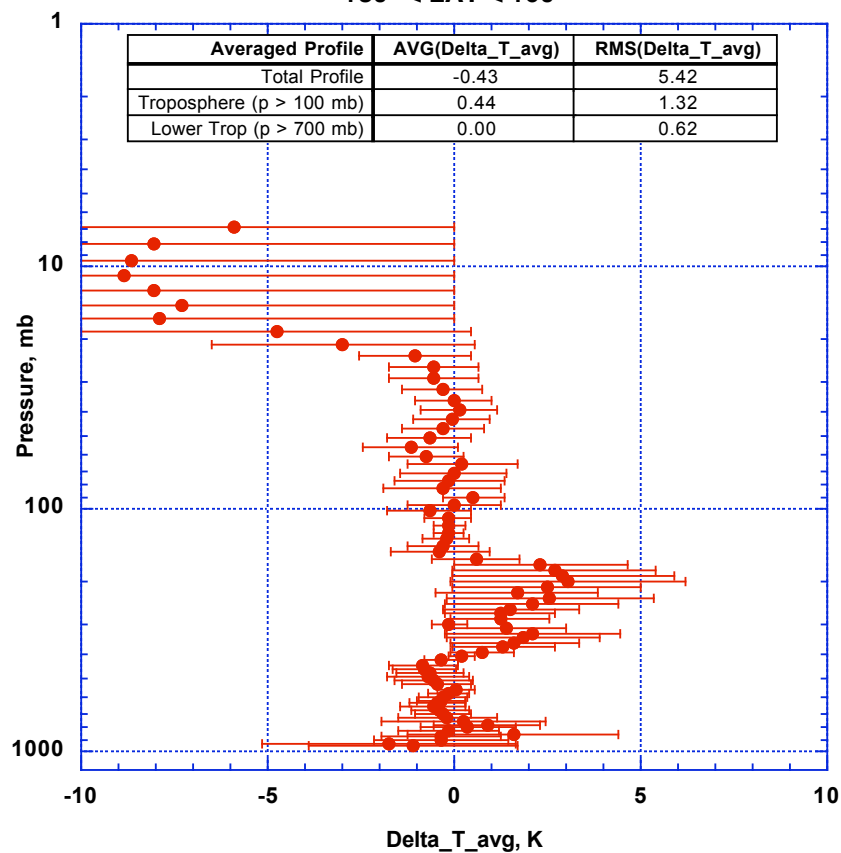


06/19/01 ETO

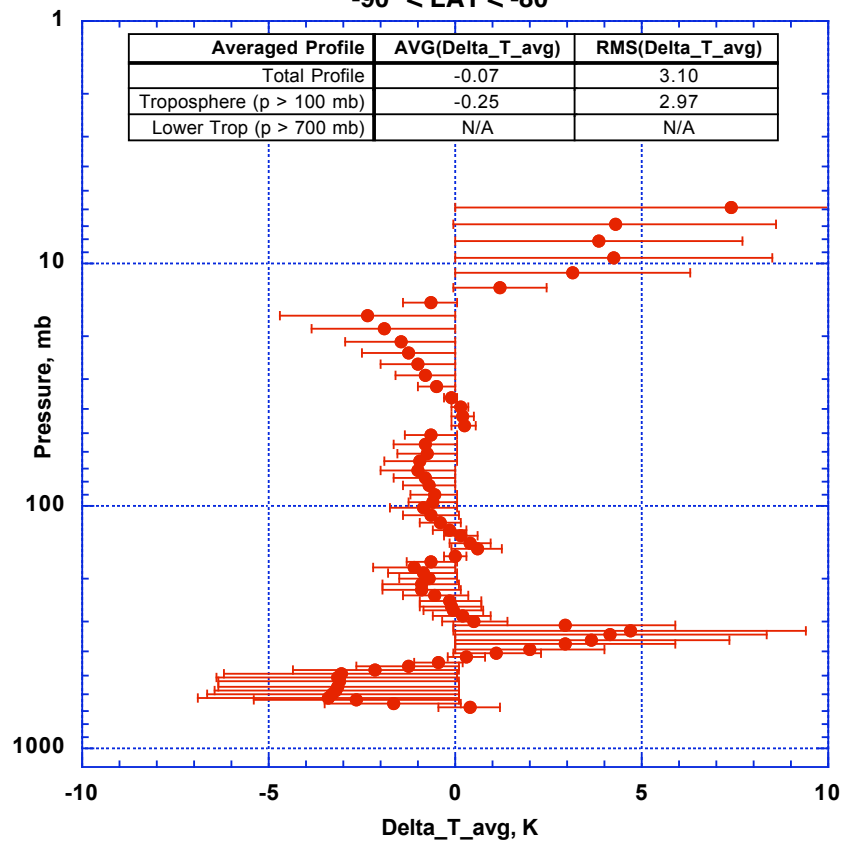




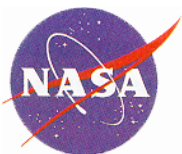
**Difference Averaged Over 14 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
+80° < LAT < +90°**



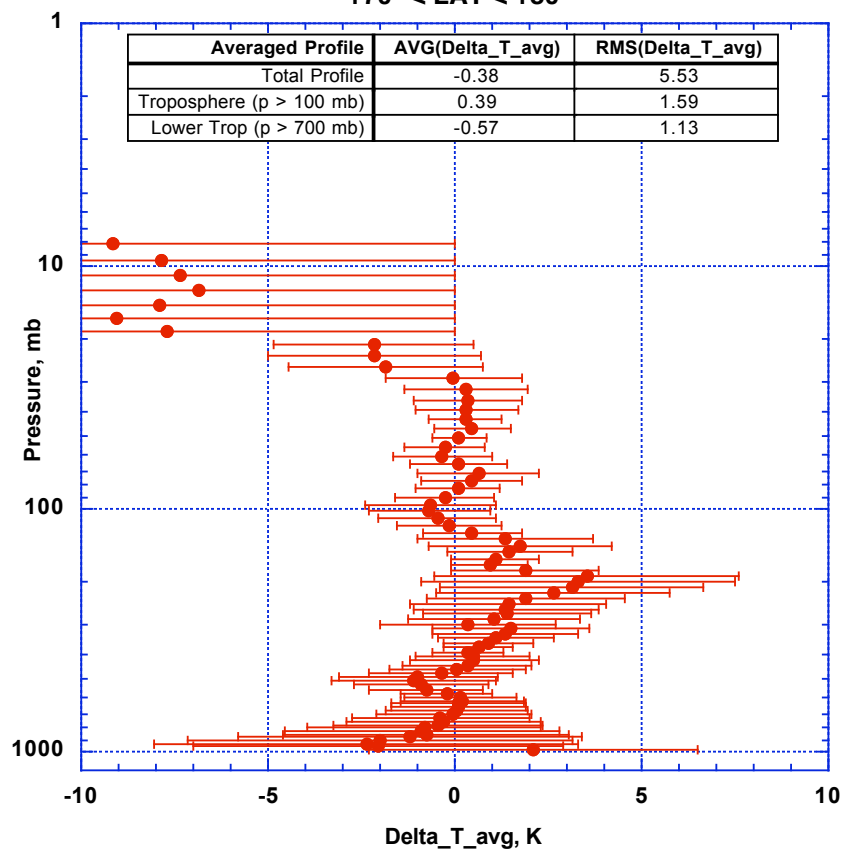
**Difference Averaged Over 3 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
-90° < LAT < -80°**



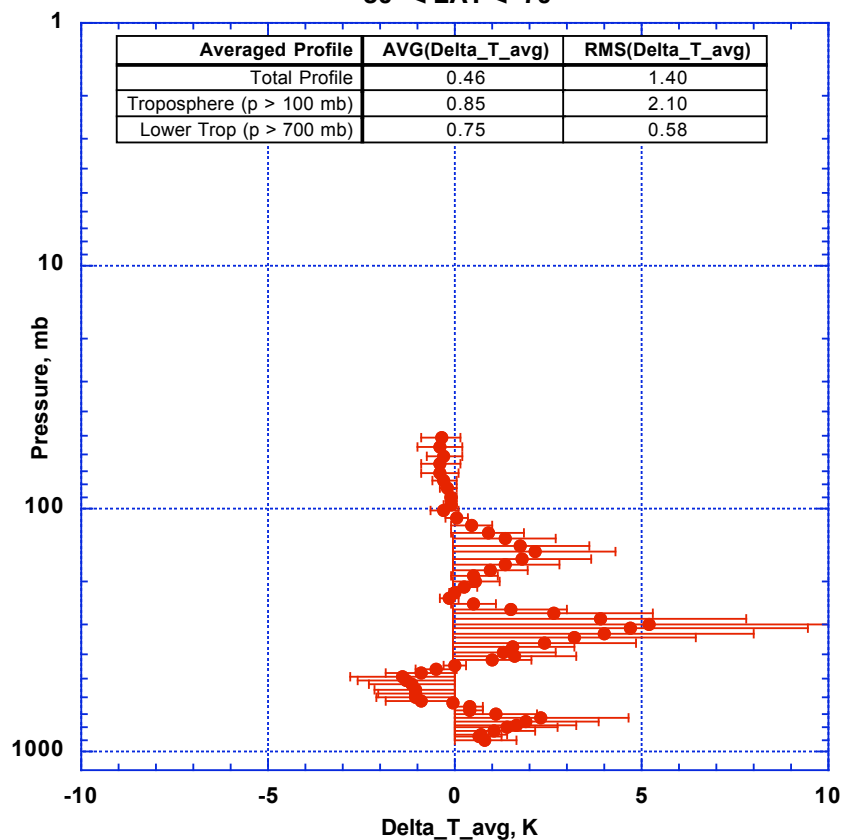




**Difference Averaged Over 24 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
+70° < LAT < +80°**

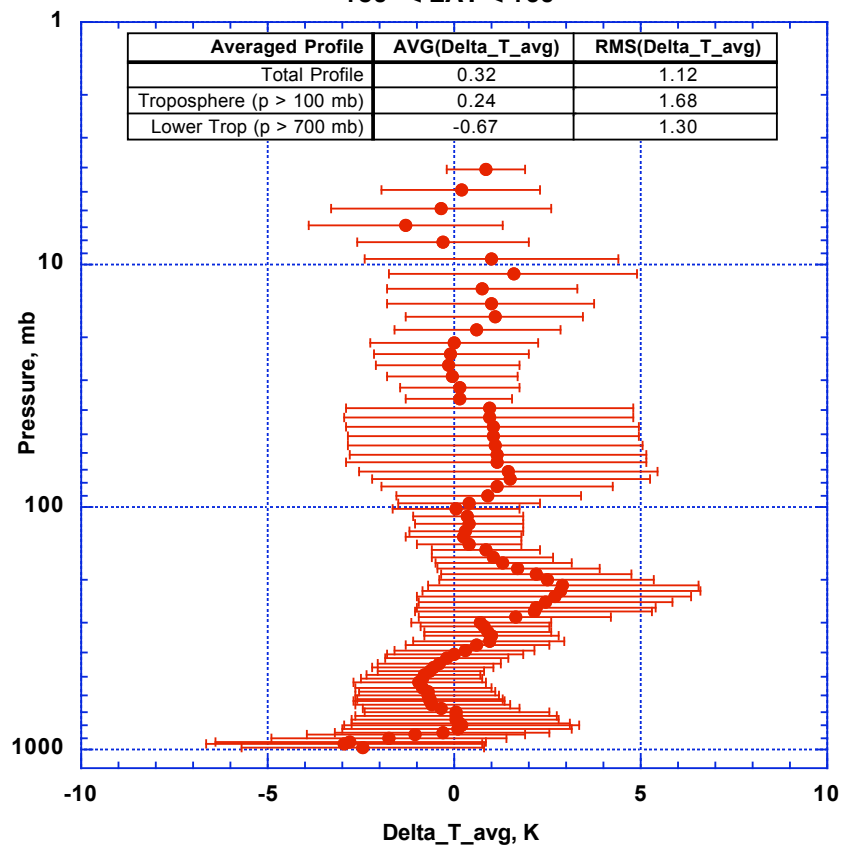


**Difference Averaged Over 3 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
-80° < LAT < -70°**



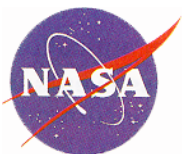


**Difference Averaged Over 126 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
 $+50^{\circ} < \text{LAT} < +60^{\circ}$**

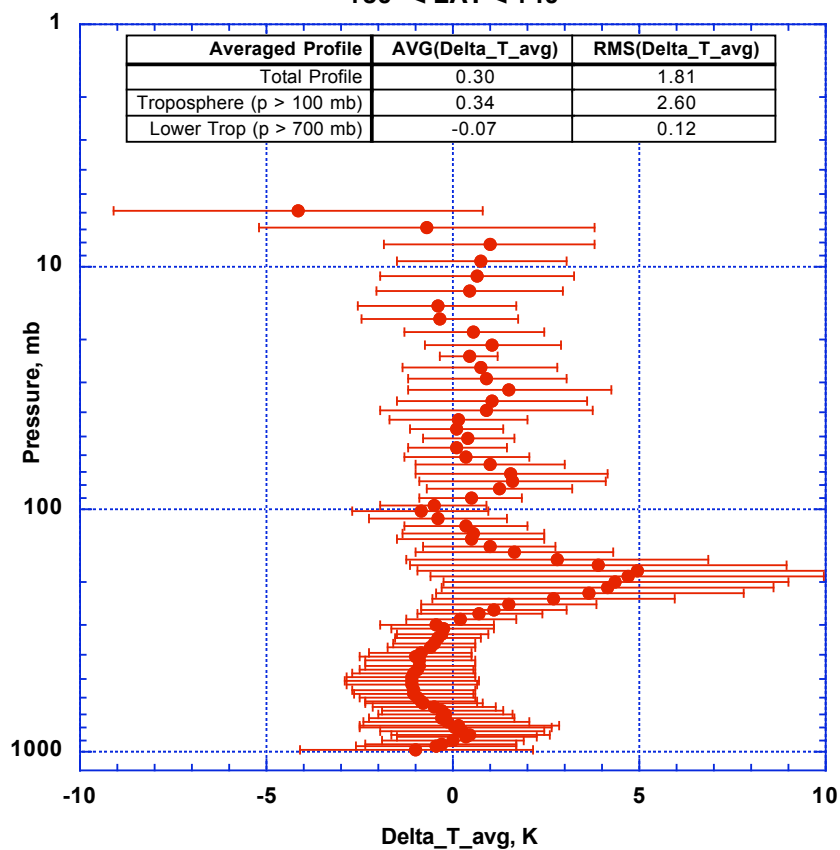


06/19/01 ETO

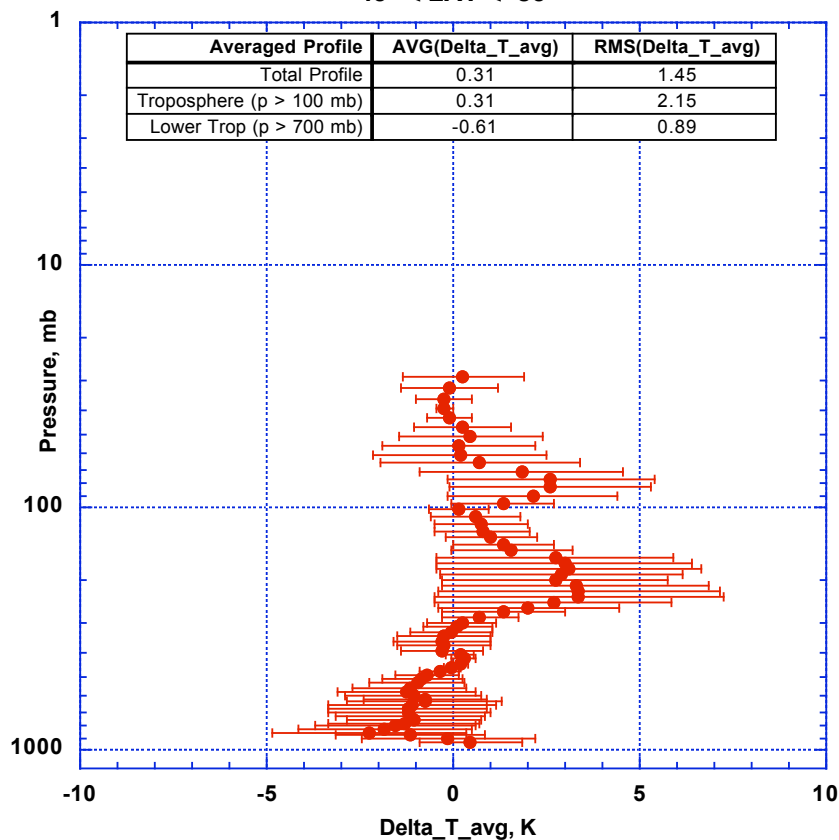
**JPL**

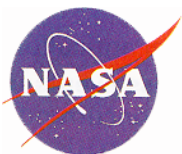


**Difference Averaged Over 65 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
+30° < LAT < +40°**

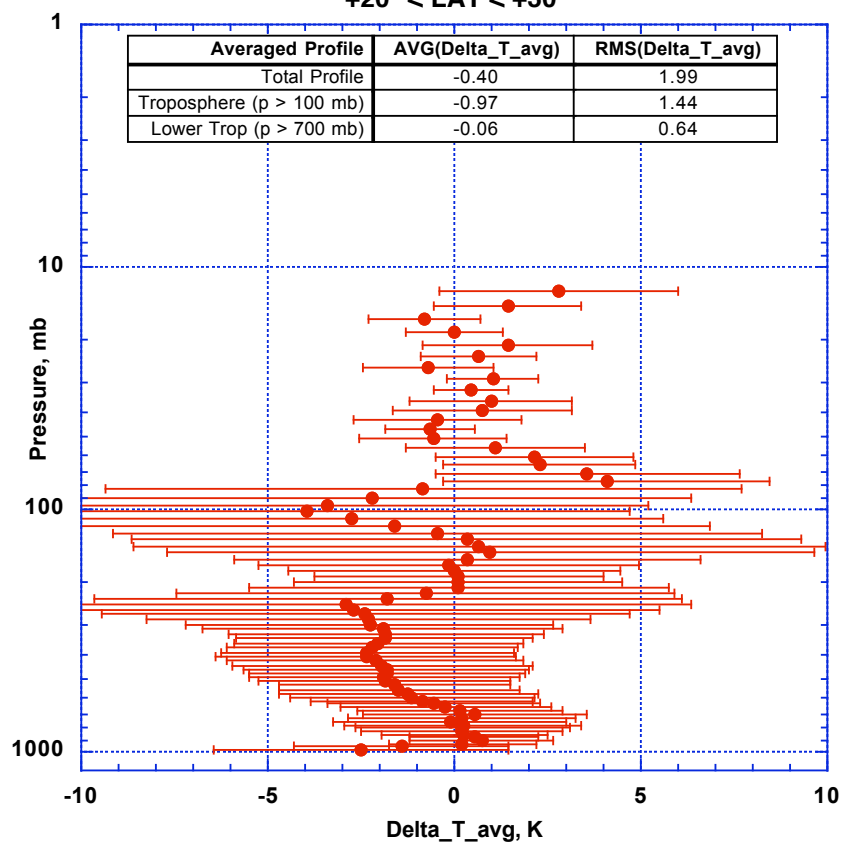


**Difference Averaged Over 3 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
-40° < LAT < -30°**

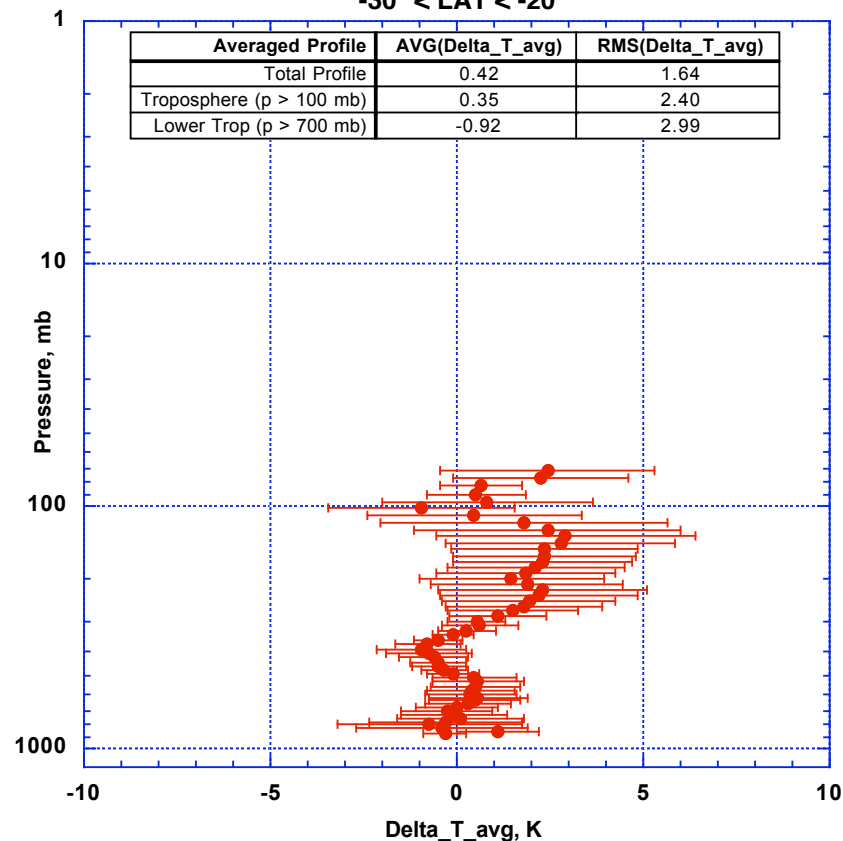


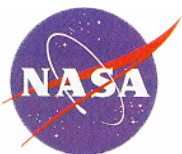


**Difference Averaged Over 11 Collocations  
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and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
 $+20^{\circ} < \text{LAT} < +30^{\circ}$**

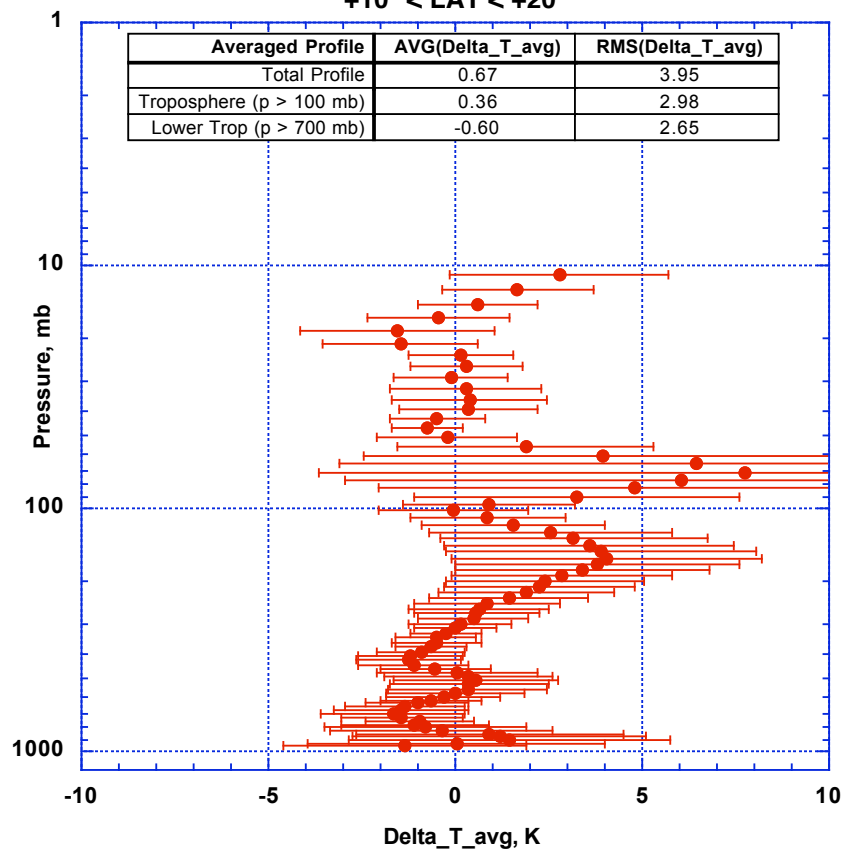


**Difference Averaged Over 6 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
 $-30^{\circ} < \text{LAT} < -20^{\circ}$**





**Difference Averaged Over 5 Collocations  
of Average Retrieved Temperature of Collocated Retrievals  
and the Associated Radiosonde Temperature Observation  
Dec 15, 2000 T12Z  
 $+10^{\circ} < \text{LAT} < +20^{\circ}$**



06/19/01 ETO

**JPL**